MSFC SCRIBE NOTES FOR 3rd SURVEILLANCE AUDIT – Aug '99

Below is the Hot Link to the Scribe Notes for the 2nd Surveillance Audit performed by National Quality Assurance, Inc. (NQA) at MSFC for Aug 23, 24, & 25, 2000.

Below is the list of the primary elements the Auditor looked at for this specific Surveillance Audit; however, he also ask the standard generic questions (i.e., Quality Policy, Management Representative, etc.)

Auditor	Primary ISO Elements Reviewed
Auditor #1 (Lead)	1 - Management Responsibility 2 – Quality System 3 – Contract Review 4 – Design Control 5 – Document and Data Control 10 – Inspection and Testing 14 - Corrective and Preventive Action 17 - Internal Quality Audits

Date: August 23, 1999
Shift: Morning
ISO Element(s): 4.3
Auditee Organization Code: TD14
Building: 4202
N = Auditor (NQA) A = Auditee

N: Explain your part in when it comes to contract review issues. What procedures and work instructions apply?
A: X-34 was a Program, as a result of the re-org. it is now a Project. The contract on this Project is for flight services. The Prime Contractor had to build a vehicle to meet this requirement. Instead of using MSFC procedures, MSFC agreed to review the contractor's (Orbital Sciences -VA) procedures and use those. MSFC did review their procedures against the vouchers of the contractor.

N: How often do you receive vouchers?
A: They are based on milestones-whenever the contractor completes a milestone.

N: Do you have a milestone chart?

A: Yes

N: When did this program start and where is it now?
A: August 1996. There are 3 vehicles on the contract. The first one was delivered to Dryden, the other 2 are still in work.

N: For X-34, who is the customer and who is the vendor?
A: MSFC is the customer. Orbital Science is the vendor. TD14's customer is the PathFinder Office and their customer is Headquarters through the Enterprise.

N: What is your Objective Evidence for 4.3, according to the Standard? (Auditor read 4.3 directly from the standard to audittee) There are certain records that are required here, I am looking for your procedure for record retention.
A: The Project plan for X-34 falls under the Program PathFinder Program Plan. The PCA which is signed by our Center Director, and the ultimate customer is the NASA Enterprise.

N: What is the top level document for this Project?
A: The governing document for us the Project Plan, but really all 3 documents (Program Plan, Project Plan, & PCA)

N: Show me the Project Plan. Why is it still in Draft form?
A: Due to the re-org. this Project used to be a Program. New Enterprises drove MSFC to re-org. a lot of programs.

N: What is the Date on this Project Plan? 8/16/99
N: What document preceded this one?
A: Revision B. The Program Plan (baselined 2/99) was made into a Project Plan.

N: Where is the original/signed Program Plan?
A: On the web.

N: Where are the milestone requirements?
A: Procurement holds those, copies of the vouchers are sent to TD14.

N: Do you have any vouchers that you have approved, how often do you get them?
A: Sporadically, sometimes 1 in a month, maybe 5. Just depends, some months I don't receive any. The old program plan was an OWI. Auditor showed Judge an example of a milestone.

N: For this one, what was the final determination?
A: Auditor showed where this one was accepted.

N: Do these stay with Procurement?
A: Yes, they keep the original.

N: How do you handle changes to the Project Plan? Who lives to this document?

A: Orbital is on a fixed price contract, changes made through contract. TD "lives" to the Project Plan. The Project Plan still in work, some areas still not complete. Page 19 of the Project Plan addresses how changes are made. Changes go through the Program Office & then to Headquarters.

N: Show me some examples of changes that were made to this Project Plan.
A: The Project has not changed recently (since re-org). The only change has been the move from New Mexico to Dryden.

N: This change should have been reflected according to your procedure.
A: Only significant changes are reflected in the Project Plan, things like the cost and schedule impacts. There is no baseline since the re-org to make a change to yet.

N: What is this document here called?
A: Supporting technical data.

N: Let me see your Quality Manual and the Level II documents? Show me the previous Program Plan and how changes are addressed.
A: Auditee pulls up previous/old website.

N: Did any milestones change?
A: No, and contract did not change.

N: Do you have a Gantt chart or anything showing the milestones?
A: Yes. This is a Procurement Document.

N: Who is this document to and from?
A: From NASA Procurement to Orbital Sciences. (Auditor and Auditee looking at Appendix B of contract).

N: Is this the latest & greatest? Dated 10/15/99.
A: Yes, my copy, procurement has the original.

N: How do you handle changes from Orbital Sciences?
A: Procurement would get the change from Orbital Sciences, we would review them, then it would go through the process on page 19 of the Project Plan

N: Let me see the new MIDL, I want to look at the numbering scheme.

N: Show me the Quality Manual.

N: Go to the index and show me where the Quality Manual address element 4.3.
A: On page 13, the level II document is 1050.1 dated 8/16/99

N: Has the Level II document been reviewed and approved?
A: Yes , baselined.

N: Go to the section on records and records retention.
A: NPG 1441.1

N: Take me to this document.

N: Show me the matrix of Quality Records Requirements. Where does it talk about retention times?
A: There is a 3rd level document that identifies retention.

N: Who retains the records and for how long? Where is this information stated?
A: In some cases it is in the OWI.

N: Where is this information for X-34?
A: I think it is under Procurement Office control. Sometimes the contract specifies this information.

N: Find out where this information is, where the record retention information is. I would like to see the retention time and by whom it is kept. Print this page and deliver it to the War Room for me.

N: Who is the Management Representative?
A: Sid Saucier

N: What is the Quality Policy?
A: Auditee reads from badge

Date: August 23, 1999
Shift: Morning
ISO Element(s): 4.17
Auditee Organization Code: CR
Building: 4201/302B

N: What do you have as far as the schedule?
A: Existing schedule is through next month. Auditee shows schedule.

N: Show me the Quality Manual and where it talks about 4.17
A: Page 18 of MMM.

N: Where is the Level II document addressed?
A: MPG 1280.6

N: Why does it have an expiration date?
A: Format of the Directives System. We still have annual reviews as well.

N: Where does it address Internal Audit records and training requirements for auditors?

N: Is your job title still the same?
A: Yes, the org. code and document number changed.

N: Auditor asked about specific auditors, if they are still here and if they are still auditors.

N: Since the last visit, which audits were done?
A: ????, ????, and Structures. Science Group audit was not conducted, postponed due to re-org.

N: NCR #5 from last visit. Definition of objective evidence was vague.
A: Section 3.16 page 12 of level II document

N: Close this issue

N: Look at #7 as we go through.

N: NCR #8
A: Section 3.5 , page 8. You have to be independent from element to audit it.

N: Is 4.17 in schedule to be audited?
A: Yes

N: Show that those auditors are not a part of any other audits.

N: Show me ????'s training
A: This information is kept in the Training department, I keep a database for my own information.

N: Show me what you keep.

N: Let me see this audit file. When was this audit performed?
A: April 26-30

N: Which elements were audited?
A: All 20.

N: Where is the final report and the checklist? Show me the NCR's written. Where are the notes for objective evidence that the auditors took.

N: Do you provide a checklist?
A: Auditors have the option of using the checklist that is provided or they can customize based on what they are auditing.

N: Show me latest version of NCR 267.
A: Show me NCR's 265 and 266.

N: Show me where the management representative was audited.
A: Feb and last week, last week's report is not in yet.

N: How has audit strategy changed due to re-org?
A: Will audit by directorates.

N: Show me the objective evidence for 4.17 audit.

N: Close NCR #8. Show me how the issue in NCR #9 was addressed.
A: ???? showed NCR – the new / revised procedure

N: What does the procedure say about objective evidence and the final report?
A: Any notes and checklist used are to be turned in

N: All of the information, who the auditors talked to, and what they looked at should be in the final report. Information in the notes, just summarized and some information was left out of the final report.
A: NCR #7 is still open, probably has to be carried over.

N: All of the notes should be transcribed over to the final report. Show me what the procedure says about incorporating the notes into the final report. If all notes are incorporated in final report there is not a need to keep all the notes.

N: You are not living up to the procedure (section 2.5 page 14). The procedure looks good. Final Report should include all objective evidence. Notes should serve to assist in writing the final report. Will carry over #7.

N: Show me where the Management Rep is to approve the schedule
A: Paragraph 3 of page 7.

N: Close NCR #9. Would like to look at a couple more internal audits. Ones that have been conducted since last time.

N: Let me see audit of Structures. Date of audit
A: May 3-6

N: Auditors addressed applicable elements? Is this the same format for the Final Report?

A: Yes

N: Show me NCR 270 & 271. Auditor looked to see how elements were handled for particular audits. Audit all elements each time or only the applicable ones?
A: Showed where applicable elements are addressed.

N: What do you do to confirm that those were really the applicable elements? How is this determined?
A: Through pre-planning efforts with the org. rep., and confirmed during the actual audit.

N: How many times is each group audited?
A: Twice per year. In the Structures audit, some elements were not audited now because they were not applicable but because auditors dropped out due to illness.

Date: 23 August 1999 (Monday)
Shift: Afternoon (12:30 PM)
ISO Element(s): 4.10 and 4.1
Auditee Organization Code: EP94/(A)
Building(s): 4561, TS4699, 4674 and 4202 (MSFC)

The East Test Area Gate was the first stop. The audit primarily covered the X-33 Lockheed Martin (LH2) "Skunkworks" Flight Tank Test Project. The audit began in Building 4561, subsequently moved to Test Stand 4699 and ended at Building 4674. "A" was supported by other members of the X-33 test support team.

"N" just kicked the meeting off with a barrage of questions to "A" and the supporting test support team members present. Element (4.10) Inspection and Testing was the principal criteria to be covered. "N" initially wanted to get clarification on the title of the "project" under review. How many different projects were being worked on, at this time. And, "N" wanted to view the inspection and test requirements documents. "A" cordially provided the details, upon request. "A" began to talk about the scope of the project and iterated that this project was unusual, in that it was not a quick and dirty inspection and test effort, it required more than the norm, thus the numerous variance requirements and adjustments could not be opened and closed, as in other projects that this group usually supports.

"A" stated that the Test Requirements Document was a living document (meaning, as the test and inspection team moves thru the process, the document is modified to reflect required adjustments necessary to meet the end goal protocol, the latest revision (Rev-B).
"A" also stated that the Technology Evaluation Department, by which he is operating under, follows a TRD Lockheed Martin Document entitled the LH2 ProtoFlight Tank Test Requirements Document (Rev-B) - 604D0136, a guideline document primarily known as the X-33 Advanced Technology Demonstrator, dated 7/9/99. "A" indicated that in this document, is details related to the in process testing requirements. "A" also indicated that this LH2 X-33 Flight Tank has two (2) parts, a Right Hand Side Tank and a Left Hand Side Tank. The first test is scheduled for September 11th. "A" stated that all Skunkworks requirements define the people

involved, the project scope, sequence description of hardware and facility requirements, etc… Operation Readiness Inspection as referenced in OWI TD70 (001) Test Project, refers to the above requirements guideline document. In addition, test article data sheets are used to notate all change requirements, pressure and temperature variance changes, etc., before all test(s).

Moreover, "A" commented that Load Control Data Tables were used in combination with the process sheets and quality plans for all test preparation and set up. The Test Prep Sheet 'or' Test Article Data Sheet is referenced in the Facility Operation Procedure (FOP). "N" wanted to know where is the FOP was referenced in the guideline document and what specifically dictated the use of this process (?) "A" pulled out a white binder with Procedure EP-STF-FOP-003, with Safety Critical Operations written on it, a Quality and Inspection Points document, stamped with Official Record Copy (FOP-003, Run - 001). "A" went on to say, that the FOP is a detailed procedure approved by the Safety Program Office, ???, and the Skunkworks Team. The FAP (????) was a one time use procedural reference guideline. At this point, "N" wanted to take a closer look at the OWI referenced, above. "N" noted a minor issue, a minor observation that updates on the FOP's checklist steps was missing, and wondered why (?) The updates were initialized, but specific dates for such initializations was missing. Why (?) What does the test and inspection document say 'or' is it not referenced at all (?)

"A" and "N" began flipping thru the FOP, page by page. "A" indicated that the X-33 Test Article was not received til 8/11/99. MSFC received this same Cryogenic Test Article in April 1999. After numerous modifications and refurbishment's were made, it was delivered to the test group in August (i.e. 8/11/99). As "A" debriefed "N" step by step thru this Structural Test Facility Operational Procedure for X-33 LH2 Flight Tank Installation Checklist document (FOP-003), it was explained the the Lockheed Martin Skunkworks project was situated as follows: (1) Left Hand Side Tank (FAB) in California, and (2) Right Hand Side Tank (Only) installed at TS4699 MSFC.

The Right Hand Side Tank is 80% ready for final testing, today. This FOP-003 has 17 Sections (i.e., 1.0 thru 17.0). The only thing left to do on this Tank is fitting piping systems, and other ancillary items. Section 9.0 (Preinstallation) checked out, O.K. A Quality Inspector and EP92Test Project Engineer reviewed and initialed this checklist section along with Section 10.0. Section 10.0 is the Flight Tank Prep Installation step. Even though the Quality Inspector and Test Project Engineer signed/initialed off in these sections of the document, their was objective evidence that stamps were also used, but no dates were marked 'or' shown, here. (FLAG) "N" asked "A" what written procedures reference the FOP-003, and if such references were also in the Inspection and Testing Master List (?) MPG 8730.1 was printed out. MPG 8730.1 is the Procedures & Guidelines for Inspection and Testing, Effective date 8/23/99 and Expiration date 8/23/2004. This is the Marshall Procedure and Guidelines (Rev-A_ QS01 Document. Another document was referenced, also, the TD70 - 9002 (Test Operations Procedure), a Test Prep Sheet (Test Article Data Sheet), most of these documents 'or' all are available, electronically.

"N" examined each of these documents looking for references to the FOP and dating of documents upon initialization. Was not found. Then, "N" looked at the following other sections of the Structural Test Facility Operational Procedure (i.e., 12.0 and 13.0, etc…). "N" asked "A" who was the keeper of this document (?) Answer: Test Project Engineer and officially the

Configuration Control Mgr. There was some discussion about the move conductor from fabrication to test area and affiliated move contractors, from fabrication to the test area for installation and testing.

"N" and "A", et al, all went out to take a look at the Flight Tank (Test Stand 4699), in the West Test Area. After securing badges from security, "N" and "A", et al, all went into the TS4699 building test stand structure. "A" pointed out the features of the unique Tank and referenced the dome bottom along with the new modified flanges added to the overall composite structure. This test article was inspected from bottom to top. After viewing the Test Article it was clear why there was a need for deviation sheets, the question was how to integrate them into the document with references to adding the date to such sheets or master lists when certain checks are made, to annotate when things were done, from the beginning to end, throughout the installation and testing process (A minor issue).

After arriving at Building 4674, "N" and "A" wrapped up this portion of the audit, reviewed one more time the Organizational Work Instructions Test Operations (002) TD. Still looking for references to the FOP (?) There was some reference about inspectors are suppose to ink something down at the issue date, keep official records, sign them off, archive them as quality records, but no mention of dating them in-between, only and issuance and closing. Document 8040 was provided to show the overall scope of installation and testing operations. The scope and applicability referencing when things are suppose to be penned or inked in with changes or stamps is at issuance and closing only. No mention of time entries 'or' marking down dates in - between.

Everything inspected, installed and tested in the Test Area is different. This project is much more than the normal test article that comes to this area for testing, very unique and complicated. Once every blue moon, even. The Test Surveillance Monitoring and Assurance Procedures are just Adjunct to the Procedural Documents for the same task. In the FOP, no dates, initials and signoff's is all, dates at issuance and test completion.

OWI doesn't require it!!! Therefore, this was documented as a minor non-compliance, the 4.10 element is in compliance. And, "A" and Control Configuration Group Leader concurred that they were involved in one or more Assessment Audits.

The second Audit stop for the afternoon was set to take place in Building 4202. Element 4.1 was addressed here. "N" asked "A" what his title was (?) Answer: Deputy Safety and Mission Assurance Office. "N" asked when did "A" join NASA, how long he had been with NASA (?) Answer: March 1963, started at NASA, moved to Huntsville in March 1966. "N" asked "A" what he thought of ISO 9000 and what specifically had he done to support and encourage it's use at MSFC (?) Answer: "A" commented that he had primarily been involved in the Program Development Office most of his career at NASA. And, that Program and Project Management has benefited from integrating the ISO 9000 quality management system into the way we do business. ISO has help MSFC move from a program approach emphasis to a customer based approach policy of operating.

"A" stated that ISO 9000 has helped improve quality tremendously. In the hay-day's, NASA/MSFC had two (2) times the personnel it has now. And yes, MSFC had excellent quality documentation records, planning and supporting programs for the process already in place. But, it was not organized and structured like ISO 9000.

"N" asked "A", where next (?) I understand you've had a nearly total reorganization of the Center, how many total directories do you have now (?) Answer: 13, and with the reorganization and new Center Director, MSFC is moving from a engineering directorate line of operation to a product line based operation. Product lines helps us all to control a destiny, unlike before, more direct control across the board without crisscrossing. We have X-34, X-33, Payloads, Space Station, specific product lines. ISO has made reporting much easier and organized. Incoming communication is focused/worked into scope, while outgoing communication is the documenting key. According to "A", there is more commitment across the board with ISO 9000, so there is more value added.

NQA (National Quality Assurance) versus DVN (Det Norske Veritas) ISO 9000 Quality Management Systems (QMS) at each Center, "N" asked "A" if he was familiar with what the other Center QMS programs were like or working (?) Answer: was not familiar with what's really happening at the other Centers, but, ISO/NQA has helped MSFC. At KSC, ISO is taking hold quite well, he mentioned that KSC has always been strong in writing down procedures, their primary driver. And, KSC assessed their work regularly.

"N" noted that AMES had no finding at their initial assessment, was curious if NQA or DVN did the assessment. "A" didn't know. More "N" leading questions ensued:

1. What does the Standard say and what is MSFC doing to meet the requirements of the Standard (?) MSFC's policy is to provide quality products and services to our customers, …., and MSFC is committed to the upholding the ISO policy's and guidelines, …

2. How far are you from retirement (?) As soon as I get tired of having fun, I'll retire. Program Project Management is what I know best. MSFC has lost, tons of corporate memory in just the last 10 years.

3. Have you thought about the (????) Yes, MSFC is a place to learn how to do it.

4. Have you thought more about how to pass the torch on (?) Like how to handoff this corporate memory that is being lost (?) Yes, training is working on meeting that question. Opportunities to learn, via hands-on activities, management, creating new methodologies, handing it off, and repeating the cycle again, …. Safety and Mission is our focus and quality policy.

5. What would you tell a newbie, who would be replacing you in the future (?) Figure out who the customer is, what the customer wants, and deliver it!!!

In conclusion: (1) minor issue surfaced, and that was the missing date with initials in the master procedural checklist, in the test area (minor observation, deserving a plausible corrective action mention).

Date: 8/24/99
Shift: Morning, 8:30am
ISO Element(s): 4.4
Auditee Organization Code: ? DCPCG
Building: 4201, room 427B

N: Can you please bring me up to speed on DCPCG?
A: Since you came to this Center, we've had a CDR and now we are in Phase D, Flight and Safety review and ATP for Phase D.

N: Can you tell me all of your names and job titles?
A: S&MA Quality Rep., Systems Engineer, Program Manager for BioTech, Raytheon support contractor for S&MA.

N: Tell me about some of these events that have taken place since I've last been here.
A: CDR, then ATP, and Phase 2 happened in June.

N: Can we take a look at some of the records associated with these events?
A: Here's the copy of the Phase 2 flight records. (He discusses the process of Phase 2).

N: Where are the comments that were the results of these RIDs?
A: The quality records are downstairs, but I have some unofficial copies.

N: What's next on the schedule?

A: The Integration Readiness Review (IRR)?

N: Since the re-org, what has changed with this project?
A: We physically moved, but no major changes.

N: (Looking at the unofficial records) How is the process defined?
A: Explains the process of unique hazards.

N: Can you show me where the groups / positions are defined? How long have you been with NASA?
A: 20 years. (Shows places of definition in document.)

N: What's the date on this document?
A: (Shows date)

N: What's the completion date on this project?
A: November 2000 through August 2002

N: How is the report tracked?
A: Hazard reports are tracked by the signatures / dates (explains process). We have a Phase 3 coming up next year.

N: Was there a Phase 1 sign-off?
A: Yes the design was not as mature as it is now. We have them downstairs with the QRs.

N: What the difference between the design review for Standard Hazards vs. Unique Hazards?
A: (explains the difference)

N: What is the time frame between Phase 1 and 2? What part does JSC play in these phases?
A: They want the CDR package 45 days early to review it. Explains safety panels role.

N: What happens for the verification / validation?
A: (explains) This will be coming up in the IRR.

N: I'd like to see the CDR and ATP records.
A: (shows documents)

N: Basically what I'm looking for is the signatures on these documents. What does ATP mean?
A: It means Authority To Proceed. (explains ATP process) It's a letter from me to the PI, giving them the ATP.

N: Tell me about the review items discrepancy reports?
A: I will show them to you when we go downstairs to look at the QRs. They are a part of the CDR. They vary anyway from a comment to a major non-conformance, of which we have found none.

N: On the RIDs, what's required of UAB?
A: The letter tells UAB to address the issue until it is closed, then sign off on it.

N: Are any of the RIDs signed off?
A: Yes, some are.

N: Where are the RIDs defined in your procedures? Can you bring it up on your computer?
A: Yes (shows process for RIDs in documentation, and prints him out a copy of the Design Control Document MPG 8060.1 section 3.5)

N: What's the difference between a RID and a non-RID?
A: (explains the difference) The CDR plan describes RIDs.

N: Let's go and see the CDR plan and RIDs in your QRs.
A: (Takes him to the file room and shows records)

N: (Asked questions about the pre-board meeting.)

A: (Shows him the pre-board minutes.)

N: Do you have a RID tracking system?
A: Yes, we have an electronic RID tracking system that you can access from the web. (shows all signatures that close out RIDs)

N: Is UAB doing a good job for you?
A: Yes, overall

N: Do they have a professor that is over the work?
A: Yes, they have some students working the project, but mostly full-time hires.

N: Can you show me the data base where you keep the RIDs.
A: (Shows RID system and explains)

N: How is the system working for you?
A: It works better than the paper copies.

N: What next on your schedule?
A: We hope to have the hardware here and fabrication complete. Phase 3 will be complete (safety review).

N: I would like to see this work in a follow-up audit in February. What is the quality policy? Who is your ISO 9000 Management Representative?
A: (Told him the policy and Mgt. Rep correctly)

Finished at 9:33 a.m.

Date: 8/24/99
Shift: Morning, 9:45 a.m.
ISO Element(s): 4.5
Auditee Organization Code: AD33
Building: 4666, room 362

N: What are your job titles?
A: Management Analyst, Computer Analyst

N: We are in the ISO 9001 Standard section 4.5 Document and Data Control. I'll read you the standard and you start thinking about objective evidence to show that you are following these guidelines. Things like your numbering system, and your computer system back-up. (Reads entire section) Since you have a new numbering system, what procedures do you use for this?
A: (shows MPG 1441.1)

N: How long have you worked here?
A: 10 years

N: Let's take a look at that document.
A: (shows him Records Retention Schedule, and Agency Filing Scheme)

N: Why is this dated 1997, and the numbering system is new?
A: (Explains the numbering system.)

N: Is this what all the sites will use?
A: Yes, as far as I know.

N: Which document is your quality manual?
A: MPD 1280.1 rev. A, Marshall Policy Directive, DA01, dated Aug.16, 1999.

N: What does this page show?
A: Level 1, 2, and 3 documents

N: What do you call your level 2 docs.?
A: Marshall Procedures and Guidelines (MPGs)

N: Where does it define who has the authority to revise docs.?
A: MPG 1410.2 para. 2.4.2

N: Is the system write protected?
A: Yes, the OPRs have the authority to change the documents.

N: What's the chances of someone changing a document and not notify others of these changes.

A: Not much chance. The document has to come to me first. Then it is submitted for approval. (explains the process)

N: Where is all this defined?
A: (shows DCB procedures)

N: Will this system tell me if there are any documents pending revisions?
A: Yes, that is on the DCB Disposition List (shows web site)

N: Can anybody outside NASA see these docs.?
A: Yes, it is open to the public.

N: Where does it state the OPRs for docs.?
A: (Shows list of OPR Designees)

N: How do you control Docs of external origin? Do you have a list of them?
A: Yes

N: Let me see your quality manual and bring up the section on Document & Data Control.
A: (Shows him the web pages)

N: Where is the MSFC Repository?
A: Building 4491

N: How can I tell who did the review and approval of the MPG 1410.2?
A: (Shows electronic review info. web)

N: Can you show me where it is defined?
A: (Shows that the Center Director is the approval authority)

N: I want to verify the review and approval of the Master List documents.
A: (Shows comments to review of the MPD)

N: Let's look at MPG 1050.1 rev. A. Contract Review
A: (Shows him document)

N: Now let's look at Internal Quality Audits, and Purchasing - MPG 5000.1 A.
A: (Showed him review and approval of these documents)

N: Can I see your original documents)
A: Yes (Showed him the original review and approval docs. with Art's signature on MPD 1280.1 A)

N: I don't have any concerns right now. I'd like to see the repository and the procedure for the system back-ups.

A: That is a contractor-run operation, so they have their own procedures.

N: Who is the ISO Management Representative? What is the quality policy?
A: (answered correctly)

Finished at 10:33 a.m.

Date: 8/24/99
Shift: Morning, 10:45 a.m.
ISO Element(s): 4.5
Auditee Organization Code: ? Repository
Building: 4491, room 129

N: I want to see what you do for computer system back-up and take a look at some documents of external origin? What is your job title?
A: System Analyst, 10 years

N: How often is back-up done?
A: 1 x a week on Wednesdays

N: Where is the procedure for your system back-up?
A: (Shows a Word Document on the computer and explains that the Oracle software back-ups on every Wednesday night.)

N: What about your monthly back-ups? Is there a controlled procedure for this process? I want to see more of a formalized procedure for a system back-up. (Get's print out of current ¼ page procedure.) This isn't a controlled document with review and approval.
A: The system is being revised and we realize that this is a problem. We have started using this new software "Documentum" and all the procedures haven't been revised yet. We can show you the drafts of the documents that we are working on. OWOHALI is the subcontractor for SCSC.

N: I have to write this down as an issue of concern, "that the system back-up procedure is not formal". Where do you keep the back-up tapes? Can I see them?
A: They are in a fire-proof safe. (Shows all tapes with dates/labels and explains the process of storing the tapes.)

N: Now let's take a look at the Repository documents. Can I see a Master List of all the holdings in this building? How would a requester of a doc. get the latest revision?
A: (Shows him the computer page for holdings in the Repository.)

N: How do people request documents?
A: Many different ways. By phone, fax, email, etc.

N: How often do people request docs.?
A: All day long.

N: Can I see a document that was requested?
A: (Shows him a sample order and shows the Master List version date.)

N: (Asked about the 2 different dates on the documents?)
A: (Answered all questions)

N: Can I see your hard copy files? (Asked Manager for random hard copy docs and writes down dates and document numbers.)
A: Labels on the filing cabinets are not updated. They have been there since the 1960's. I'm gonna need some help finding documents. We've been going through some paper reductions of 50%, so everything has been shifted a little. (Calls in another employee to help find some docs.)

N: (Asked to see doc #s MSFC-PLAN-2859 dated 3/1/99, MFSC-PLAN-1784 dated 8/16/89, MSFC-PROC-2974 dated 4/16/99, MSFC-SPEC-2763 dated 8/20/98, and MDC-G9840) I want to see if these dates match up with the dates you have in the "Documentum" computer version.
How long have you worked here?

A: 14 years. Yes, you can see them on the computer, but some of these documents are old and will be on our "old" system.

N: Tell me the difference between classified and unclassified? Are there any classified documents here?
A: No (explained)

N: Let's search you system for these docs. and dates.
A: (Searched computer and all new docs checked out.) I'll have to let you see another employee that works with the both old and new docs, to finish your list.

N: (Goes to employee work order desk) How long have you worked here?
A: 2 years. (Shows that all information checks out perfectly.)

Finished at 11:50 a.m.

Date: August 24, 1999
Shift: Afternoon
ISO Element(s): 4.17, 4.2, 4.1
Auditee Organization Code: QS01, DE01, and ED01
Building: 4202, 4200

N: I would like to see some internal audits. Show me your schedule.
A: Here is the schedule. This schedule is incorrect. Because of the re-organization it will change. Not all the internal audits are complete with the report.

N: When was this one? *(Payload Operations Ground Systems report)*
A: In February. This one was performed before your last visit. This organization got split during the re-organization. Because of the move, we are going to a new audit system.

N: *(Looking at audit files)* This audit was on CR?
A: Yes, This was on CR, this Materials and Process Lab (EH), this TA. *(TA is out of scope.)*

N: This audit is of who? *(looking at name)*
A: Chandra. Observatory Projects Office. Chandra was main project.

N: When was this audit performed?
A: February 8-11. Although they were out-of-scope, we still audited them. Our philosophy is that everyone should at least know the general things. So we audit everybody.

N: *(Looking at file)* The auditor "x" out Quality Management System, why?
A: Well all/everything is a part of the quality system.

N: *(Looking at file)* Where is the final report?
A: (*Presented the final report for Observation Projects Office*.)

N: *(Looking at report)* Here the auditor has 1, 3 marked, why did they skip 2?
A: Report is written after audit. Let's look at the report and see if the auditor has anything on Quality System in the report.

N: *(Looking at report)* Okay. Auditor could have done a better job of recording objective evidence. What is this file?
A: EP Lab.

N: Who? What was the date?
A: EP. Propulsion Lab. April 12-16 was the week of the audit.

N: Where is the final report?
A: (*Presents the final report*)

N: Who conducted this audit?
A: ????. This is actually the first audit after your last visit when we were trying to implement your suggestions for a corrective action system.

N: *(Looking at audit report)* When writing reports, you should include the revision when referencing documents like OWI's and things.
A: In past we have tried not to go past organizational level.

N: *(Looking at audit report)* If you go beyond this, you need to go in more detail.
A: For future, I'm trying to get auditors to follow examples of audit formats. Problem is no one works for me so sometimes it can be hard to implement procedures for doing things. Good thing is now, auditors must submit information electronically and that helps in ensuring we get the proper information and can place it in the proper format.

N: I like this *(looking at the notes on the file);* you made notes that you followed up on an NCR.
A: That's part of my procedure that I use.

N: I've seen in some reports where they put reviewed NCR's in caps on the report. Put notes in 4.14 or 4.17 section of report. Note fact that they followed up on the CA system.
A: We have similar system. We put it in the final report as well as in the exit briefing.

N: *(Looking at EP report)* When referencing an OWI, you need to write the revision of the document.
A: We usually do that, however, that document, EP81-OWI-004, did not exist and that's why no revision is listed in the report. What happened was one of the existing OWI's referenced this OWI number, however, this OWI never existed.

N: I've seen what I was looking for. We can now go talk with the next interviewee.
A: I've been on this job for one year and we've had some improvement. I expect to see even more improvement. I'm trying to do whatever I can to improve the system.

N: The 2000 issue of ISO is based on continuous improvement. Keep in mind, how you can improve the system.
A: Center management is really big on Safety and process improvement.

Element 4.1

N: Management Review Minutes, Quality Council. What procedure applies to Management review?

A: I've printed the minutes from the review; Implementation Team Meeting, and Quality Council meeting which was held last week.

N: Your procedure was called what? You are using a new numbering system now?

A: All are the same. We've just changed the numbers. *(Showing printed copies).* We've updated the Marshall Quality Manual. All have been updated based on reorganization and some have been updated to include the new scope.

N: What is your job? Your responsibilities for ISO?

A: I'm responsible for day-to-day implementation. I'm the Associate Director. Assistant Director, Technical was responsible for ISO before he retired.

N: Your title before?

A: It was the same *(showing Organizational Chart)* but ???? was responsible for ISO.

N: Where does it define your title as ISO Rep?

A: In the Management manual. *(looking through the manual)* page 9 of MPD 1280.1

N: What's the Procedure for management review?

A: *(reviewing document)* The Quality Council is to meet a minimum of twice a year. MPG 1280.1 Baseline. Meeting was held on 8-20-99 and 3-12-99.

N: In the procedure, where does it talk about minimum attendees?

A: Management review is conducted with a minimum of 5 mandatory people who must be there. Me, the center Director, Deputy Director and head of S&MA and I think the head of ED but not sure but should be 5 people. Looking through document. It should be in MPD1150.1 for membership.

N: Can you show me that document?

A: Located on the master's list? *(begin search on computer, locate document and charter)* Here is the charter document. There are 4 members required not 5. Top 3 plus S&MA Director. MPD 1150.1 Rev. B. Correction. MPD 1150.1 Rev. A and Charter is Rev. B.

N: I'd like you to show me the summary they put together for internal audits.

A: *(Show presentation of management review.)* It's an enclosure to the review.

N: How long does management review last?

A: We schedule for 2 hrs. It generally lasts close to 2 hrs.

N: Show me the Internal Audit Report.

A: *(Show report in review)* We have been scheduling audits per boxes. *(Pointing at the Org. chart).* What we will try to experiment with the next couple of months is different. We will still do audits of boxes but will now do audits of directorates and pick which departments/groups that we will audit. More sampling like NQA. We will report daily briefings not only to specific departments but we will report to the directorate heads. We

think this will cut the number of auditors. If id doesn't work, we will go back to the old system. We really think this will work well. Since re-organization, and with Art coming on as new center director, we have some new people. Art has been through I believe 4 assessments. He wants us to improve our process and safety. Our policy is to provide quality products and services to our customer. I like to say "to improve quality of service." Or "to enhance quality of service." To make better. I think we should want a quality product to improve safety for 1) the public 2) astronauts 3) workplace. Also, to address the high cost of equipment. That will match up the goals of ISO 2000.

N: What is a focus team verses implementation team?
A: Focus team is different from the implementation team. It doesn't have a charter. It is composed of some of the strong "key" members of the center. They come together to make sure we understand the focus and all issues are covered. They look at what we can do better. What we think the agenda should be.

N: Last time, I had an observation of the feedback requirements for the meeting.
A: Yes. The minutes of all implementation team meetings must go to all directorate heads. If I go back to the implementation team minutes, I try to make sure all leaders know what is going on. We got through team actions from previous meetings. We discuss the audit manager's report. We review the document library. We talk about "dry runs". Each "direct report" gets a copy of this report/minutes. I've found that people have been reporting that they have not completed their actions in the ample time so I'm planning to report that to direct heads. For example, the Center Operations Group may report how many OWI's they have open when they were suppose to be closed. I'm going to report what OWI, the Org Rep, the OPR, etc., who have not done what they are suppose to and then management will know. Especially for this re-organization. Most of the OWI's, probably 85 % were just name changes or organization code/symbol changes.

N: Let's look at your Corrective Action system.
A: We have 14 NCR's open and 0 late. Our corrective and preventive action process is in place. One of the things I wanted to do when I went into Propulsion lab was to go to the contractors *(name)* and talk to then in small groups and ask them how we were doing. They told me we had too much arrogance and needed to improve our attitude.

N: What year was that?
A: That was over 3 years probably 3 or 4 years. Working on our attitude, we had to realize that we were there to support them. We were able to do something never done before. We developed the Fasttrac. We had "young blood" do the designs in-house. Trying to get to a quality system. We went to the contractor and asked how we were doing. Then they said our biggest problem was that we were putting our own work above them. Now we are trying to poll- sending out forms- for them to give us an assessment. We assess them but they can't assess us. We need to allow them the opportunity to tell us what kind of work we are doing.

N: You have a listing of NCR distribution by element?
A: Escort- we did that last year but not this time in this report. I do keep that information in my file.

N: What about customer feedback?
A: We do have what is called the Qual Com – Quality comment form for customer feedback. We've had two (2) to come back and both were positive. None were deficiencies. We are building them and they are improving. I think that is important.

N: Review is very important. Expansion to scope – what are the biggest hurdles?
A: Don't think it will be much different. Just a culture change. A discipline process. People responsible are "go getters". I'll tell you an example; One person who is new to committee presented a good orientation to their group. Presentation was really impressive. Most of the new documents that have been revised. We are trying to get there. MQM is written to handle the new scope. We have people who are big supporters. *(List some senior level managers)* Procurement has a web site just for ISO. It's good to have that type of motivation for the people. We got to show progress. My issues which are in this report *(back to Management Review)* such as purchasing flight hardware on a credit card. People must know that they can purchase flight hardware on a credit card, but they must get the quality certification. We must make people understand that there are benefits for this process. The quality system is effective and has improved our process. Procurement reduced 65% of its documents. Calibrations system was a big issue. Now it's all done electronically. Now they can look at the system and find out when something has to be calibrate and schedule the work without a breakdown in schedule. The system establishes a more formal discipline in the system.

N: I have no issues. I was just concerned with the fact that you all did a move, document number changes, etc. and it all happened since February. That's amazing. Thank you.
A: Thank you.

Element 4.1 - ED
N: What is your Job title?
A: Deputy Director for Engineering Directorate. I believe you got to talk with ???? the last time you were here. He was in this position then. This is ED Badge ….. We gave these out at our all hands meeting.

N: The reason I try to talk to deputy and middle management is to get a fell of how things are going. Get a little about your background. Tell me a little about yourself and your job.
A: Auditee gives MSFC work history background.

N: What changes have you seen in the quality system with the re-organization, etc. I applaud you all for what you have done.
A: The ISO system gives us the discipline and medium to maintain a good quality system unlike what we have had from previous systems like TQM, CI, etc. This system allows us the opportunity to bring in new people and show them the system and they become familiar with how we do business.

N: New employees. Do they come through you or who for new employee orientation?
A: Today, we have the documents in place that give them the information needed to start work.

N: What kind of "hand off" did you have for this position?
A: I had a good "hand-off" because ??? is just down the hall. ED is half the size that S&E was when ??? took over after ???? retired. So I had an easier hand-off than ??? did when he took over the job.

N: How many people report to you?
A: Direct report, I have a secretary. I support ????. The organization (ED) has around 750 people. Six (6) organizations report directly to ????. Four (4) Department, Business office and Engineering technology office. With the center moving more to RT (research and technology) we must commercialize space. With NASA moving from shuttle to technology, *(naming projects)* we look for *(contractors)* to build the next vehicles and that they be privately funded. At least that is what the future is to hold.

N: X-33, X-34, what is the time frame for going to space?
A: Neither will go to space. X-34 will go first, X-33 is going to 50,000… X-33 is vertical lift-off. X-37 takes off to orbit by shuttle and kicks off. It can run for 21 days and will return to the atmosphere and land. We are driving down cost. Lower cost. Shuttle is a good vehicle but it's expensive.

N: In future, where are you all going with extension of scope? Where do you hope to go with this in ISO 9000 taking you/ MSFC/NASA?
A: The NASA Administrator likes to talk about better/faster/cheaper. Clearly NASA is not going to get a better way. ISO 9000 is a key factor in our better way of doing business. We have in part been spinning our wheels but now we must do better. NASA 7120.5A level guidelines on programs and project managers. We have heard from industry and 7120 is helping us get a better improvement on our processes and becoming more cost effective.

N: Do you feel that the people have bought into this theme, ISO 9000?
A: I think so. I think because the center management is such strong advocates for the process. We may have some "nay sayers" but that is to be expected.

N: You are going to have those type of people. I think you should bring them to the table and explain to them what you are trying to do and ask them why they have the attitude. Ask them for a solution on how to fix they problem they have with the system or just go back and shut-up. Only heard of one incident where on person just left the company after they told him that.
A: I don't think we are doing anything much different from what we were doing in the first place. Most people will say that ISO has not affected them much now. They were doing it before but now it's just in a meshed quality program.

N: That's all I have. Thank you.
A: Thank you.

Date: Aug 25,1999 (Wed)
Shift: Morning
ISO Element(s): 4.14 Corrective & Preventive Action
Auditee Organization Code: HEI
Building: 4471/A119

N: Are there any revisions to your procedures?
A: Yes

N: Can you access your Master List?
A: Yes

N: Re-establish what document numbers exist now….MSFC C01
A: (looking at conversion list)

N: Is this condensed?
A: No, one-to-one across. (searching list for MWI 1280.2 Rev A….found it)

N: SMA-CR10...What and where is this?
A: This changed from CR to QS. (found SMA Master List) This changed to QS10-R-012 Rev D

N: Open 1280.4….How many pages does this have? Do you have a hard copy ?
A: No, I pull it off the database.

N: Review some things from last time
A: Ten customer responses….all positive

N: February 1999…Look at activity since then. Confirm no customer complaints since then.
A: (Access Qualcom System (quality comments)) starting in March

N: How many did you receive?
A: Six

N: Let's look at some…..# 85
A: From ???? Boeing North America, ROC Software support, positive response

N: Look at # 87
A: Boeing, TDRSS Communication System Testing (attached letter…going to another system to find) Positive letter to the Center Director

N: Did they scan it in (letter)?
A: Yes

N: Look at # 111
A: Boeing, Calibration Flow Meter Fast and accurate service.

N: Which division of Boeing?
A: Boeing Huntsville

N: Where are the other Boeing located?
A: #85….Local #87…..California

N: Look at #88
A: Boeing in KSC (Florida) Thermal Vacuum Chamber Support

N: Last time, you had some PAC ? open tracking system actions
A: (gave list of open items and showed on the computer where they were located) RCAR (Recurrence Control Action Report)

N: Yellow one's are open?
A: Yes

N: What is QSDN?
A: Problem with Quality system that someone submits. It is a problem that needs to be fixed.

N: What about due dates that have passed?
A: They are in review

N: Bring up #51…QSDN
A: Level IV document in Fastrack Document (RCAR51-Cabextend)

N: When was this written?
A: 3/4/98…..extended to 3/10/99 Since this time it is in Cab Review

N: QSDN Cab Review…..Show where this is.
A: (submitted paper copy of Cab Review and explained)

N: Does it give time frame?
A: No

N: Where are we now?
A: (pointed to paper copy)

N: Look at #48 RCAR
A: Inconsistent with property manual and procurement guide

N: What step in process is this one……due date?
A: It is being revised and submitted by Sept 30,1999

N: Look at #90 RCAR
A: CWI does not define the process

N: What is CWI?

A: Center Work Instruction….They are task agreements between departments. Still working on these issues of cross cutting team.

N: Date 7/16/99…Will this change?
A: Yes

N: What is new date?
A: This is in process to extend date.

N: Will you update this?
A: Yes

N: Look at a newer one…..#119
A: Hardware problem…leakage. In process of doing some studies.

N: Let's look at some closed one's.
A: (pointing them out on paper copy)

N: Look at #115 (closed)
A: Hardware problem written 7/14…..bad electrical connection

N: Are these available on the internet?
A: Yes, some things are scanned in

N: What was the proposed corrective action?
A: Bottom line….never use again because it is so crappy. Returned bad unit to 3M

N: Did this go into space?
A: Yes, but never again. This goes to project people since it is a hardware problem

N: Look at #108 (closed)
A: ISO 9000, Document not maintained (Quality Manual). QSDN, therefore CAB. CAB signed off on it.

N: Look at #104
A: Hardware problem, Internal Sampling Adapter for Space Station

N: Do you have an attachment?
A: No

N: Can you show me 6793 DRID?
A: Yes, disposition found (RCAR search)

N: Follow out closeout
A: Not a hardware problem but a testing problem

N: Are the responses good with RCAR system?
A: Yes, the system is good for distribution center-wide

N: Can you bring up Records Procedures? Bring up Quality Manual…start with Quality Manual
A: (going to Directives…..MPD 1280.1….Marshall Policy Directive)

N: Go to page 18 ….Quality Records. Can you bring up MPG 1441.1?
A: Yes (brought it up)

N: Do you have a records matrix?
A: Not one big matrix for the Center but within specific documents

N: Looks Good! I have no issues….you did good.

N: Is this the only corrective action system for Marshall?
A: No, contractors feed another system, a general system called PRACA (Problem Reporting and Corrective Action)

N: Who maintains PRACA?
A: I do for Marshall

N: Is this documented?
A: Yes (showed him QS10-R05)

N: What system applies to PRACA?
A: OWI's…..local database feeds system

N: Can I see the local PRACA's?
A: Yes (showed him)

N: How often are PRACA's written?
A: Quite often

N: Idea of how many there are and what is there current status?
A: Not sure where to go (searching). Found list of newly opened and closed. Going to last month, for example, nine open in July and 12 closed in July

N: Can I see one open and one closed?
A: (accessing another system) A17418 SSME ….This one made it in the system by mistake. A new employee was practicing and entered it. A17420 SSME …. Low pressure turbo pump (Rocketdyne)

N: Can I see the year query?
A: Yes

N: When and who wrote A17420?
A: ???? 6/29

N: Closed?

A: Yes

N: How did they close it?
A: Not fully closed. "P" (pending until 8/23/99) Technically not open until this Wed when it will be reviewed

N: Procedure QS10-R05…. Bring this up.
A: OK

N: Look for code "P" (pending).
A: (searching document for reference) Found statement referencing back to NASA document. Going to Level II Shuttle Program definition for code "P". I have this document if you want to see it.

N: OK, go back to PRACA list and query by year. Go to 99, 98, and 97. I want to know how many and there status.
A: By date…..which date?

N: 1/1/98 – 12/31/98
A: (brought up the list)

N: What is "N"?
A: Non-problem. The total for the year 1998 was 174 from Marshall

N: 1997….How many from 1/1/97 – 12/31/97?
A: The PRACA system has been around since 1978. (brought up the list)

N: How do you tell what date?
A: I have it sorted by project and date.

N: OK
A: 300 and all closed for 1998

N: Who is your ISO management representative?
A: Answered correctly

N: What is the Marshall Quality Policy?
A: (answered correctly)

Date: August 25,1999
Shift: Morning
ISO Element(s): N/A (follow-up)
Auditee Organization Code: (contractor)
Building: 4203/1201

N: Did you revise any procedures?
A: No, we did not

N: Can you show me the minutes and who keeps them?
A: ???? and they are also on the web (showed paper copy of distribution list)

N: Show me latest on the computer
A: OK (also showed paper copy of who receives this)

N: How often do you have these meetings?
A: Every week unless there is a conflict

N: Let me see the CAR. Should this be signed off?
A: That is for you to sign (signed)

N: I will close out NCR #2 (signed)

N: NCR #3
A: (accessed it on the web….paragraph 10.2)

N: Good, close out (signed)

N: NCR #4…..I will take a copy

N: NCR #5 (signed)

N: NCR #7….Leaving this one open…..Looking Good! Carry the one issue.